AMENDMENTS TO THE CLAIMS

1. (Withdrawn) Process for a chemical vapor deposition of layers of a material on a substrate which extends generally in a plane, comprising:

placing the substrate in a horizontal duct made of a refractory material;

heating independently an upper and lower wall of the duct by a first and second heater, the first and second heater extending above and below the substrate, outside the duct;

heating independently an upper and lower surface of the substrate by radiation of heat from at least one wall of the duct raised to a temperature substantially higher than ambient temperature;

creating a temperature gradient with respect to the upper and lower surface of the substrate;

emitting compounds in a gaseous form into the duct; and

depositing the compounds on the substrate.

2. (Withdrawn) Process according to claim 1, further comprising;

placing at least one heat shield around the first and second heater, the at least one heat shield being concentric with respect to the duct and situated outside the first and second heater.

3. (Withdrawn) Process according to claim 1, wherein the temperature gradient is perpendicular to the plane of the substrate and oriented in a first direction.

4. (Withdrawn) Process according to claim 3, further comprising:

reversing the first direction of the temperature gradient.

5. (Withdrawn) Process according to claim 1, further comprising:

creating a flow of a gas which is inert with respect to all materials included in a reactor and with respect to the material to be deposited and to the compounds in a gaseous form.

6. (Currently Amended) Reactor for a chemical vapor deposition of layers of a layers of a material on ~~a~~ at least one substrate which extends generally in a plane, comprising:

a horizontal duct made of refractory and thermal conductor material, the duct being in the form of a tube comprising an inlet opening and an outlet end facing the inlet opening,

first and second means for heating an upper wall and a lower wall of the duct to a temperature substantially higher than ambient temperature, the duct absorbing the radiation omitted by the first and second heating means, the first and second means for heating each including a resistive element and an independent voltage supply, the first and second means for heating extending above and below the substrate, and outside the duct, the upper and lower surfaces of the substrate being heated by radiation of heat from at least one wall of the duct; and

means to emit compounds in a gaseous form into the duct and to provide a gas flow into the duct, the duct being chemically stable with respect to the gaseous compounds and arranged in relation to the gas emitting means so that the inlet opening lies facing the gas inlet, the gas flow generally parallel to the plane of the at least one substrate from the inlet opening to the outlet end of the duct, the duct channeling the gas streams along the flow, thereby limiting any turbulence liable to disturb the growth of the layers of material on the substrate.

7. (Canceled)

8. (Previously Amended) Reactor according to claim 6, wherein the duct has a rectangular cross section and includes two plates forming a lower wall and an upper wall which are horizontal and parallel to the plane of the substrate in a position that the substrate occupies during a deposition.

9. (Previously Amended) Reactor according to claim 6, further comprising: at least one heat shield around the first and second means for heating.

10. (Previously Amended) Reactor according to claim 9, wherein the duct, the first and second means for heating and the at least one heat shield is placed in a tube.

11. (Previously Amended) Reactor according to claim 10, wherein the duct does not contact the tube.

12. (Previously Amended) Reactor according to claim 10, wherein the reactor is configured to pass the compounds in a gaseous form via an outlet of the duct between an internal space of the duct and a space lying between the duct and the tube, to balance pressure on at least one wall of the duct.

13. (Previously Amended) Reactor according to claim 12, wherein at least one wall of the duct have a thickness of less than or equal to one millimeter.

14. (Previously Amended) Reactor according to claim 8, wherein the first and second means for heating include a graphite strip or band placed flat and parallel to the lower wall and upper wall of the duct, in a geometry so that, in the deposition zone, a deviation from the mean temperature on a surface of the substrate is less than 3°C.

15. (Previously Amended) Reactor according to claim 8, wherein the first and second means for heating are positioned, outside the duct at a distance of 1 to 3 mm from one of the lower or upper wall.

16. (Previously Amended) Reactor according to claim 6, wherein the first and second means for heating may be raised to different temperatures.

17. (Previously Amended) Reactor according to claim 6, wherein the first and second means for heating form only a single heating device placed all around the duct.

18. (Previously Amended) Reactor according to claim 6, wherein the first and second means for heating are placed in a region of a deposition zone.

19. (Previously Amended) Reactor according to claim 6, wherein the means for heating are supplied with a voltage of less than or equal to 230 volts.

20. (Previously Amended) Reactor according to claim 6, wherein the duct is internally lined in a first portion with a secondary duct made of refractory material.

21. (Previously Amended) Reactor according to claim 6, wherein the first and second means for heating are offset with respect to each other in a longitudinal direction of the duct.

22. (New) Reactor according to claim 6, comprising mechanically driven means to rotate the substrate so as to ensure greater uniformity of the deposition.

23. (New) Reactor according to claim 1, wherein the cross section of the duct is rectangular and has an internal height less than 30 mm and a width approximately equal to the width of the substrate or approximately equal to the sum of the widths of the substrates which are treated during the same deposition, the length of the duct being equal to approximately five times the diameter or the length of the largest substrate which it is desired to use or equal to approximately five times the sum of the diameters or lengths of the substrates on which a deposition may be carried out during the same operation.

24. (New) Reactor for a chemical vapor deposition of layers of a material on at least one substrate which extends generally in a plane, comprising:

a horizontal duct made of refractory and thermal conductor material in the form of a tube comprising an inlet opening and an outlet end facing the inlet opening, the cross section of the duct being rectangular and having an internal height less than 30 mm and a width approximately equal to the width of the substrate or approximately equal to the sum of the widths of the substrates which are treated during the same deposition, the length of the duct being equal to approximately five times the diameter or the length of the largest substrate which it is desired to use or equal to approximately five times the sum of the diameters or lengths of the substrates on which a deposition may be carried out during the same operation;

first and second means for heating an upper wall and a lower wall of the duct to a temperature substantially higher than ambient temperature, the first and second means for heating each including a resistive element and an independent voltage supply, the first and second means for heating extending above and below the substrate, and outside the duct, the upper and lower surfaces of the substrate being heated by radiation of heat from at least one wall of the duct; and

means to emit compounds in a gaseous form into the duct and to provide a gas flow into the duct, the duct being chemically stable with respect to the gaseous compounds arranged in relation to the gas emitting means so that the inlet opening lies facing the gas inlet, the gas flow generally parallel to the plane of the at least one substrate from the inlet opening to the outlet end of the duct, the duct channeling the gas streams along the flow, thereby limiting any turbulence liable to disturb the growth of the layers of material on the substrate.

25. (New) Reactor according to claim 24, wherein the duct, the first and second means for heating and the at least one heat shield is placed in a tube.

26. (New) Reactor according to claim 24, wherein the first and second means for heating are positioned, outside the duct at a distance of 1 to 3 mm from one of the lower or upper wall.

27. (New) Reactor according to claim 24, comprising mechanically driven means to rotate the substrate so as to ensure greater uniformity of the deposition.